

# **SYSTEMS AND METHODS FOR INTEGRATION OF HETEROGENEOUS CIRCUIT DEVICES**

## **Abstract of the Disclosure**

A heterogeneous device comprises a substrate and a plurality of heterogeneous circuit devices defined in the substrate. In embodiments, a plurality of heterogeneous circuit devices are integrated by successively masking and ion implanting the substrate. The heterogeneous device may further comprise at least one microelectromechanical system-based element and/or at least one photodiode. In embodiments, the heterogeneous circuit devices comprise at least one CMOS transistor and at least one DMOS transistor. In embodiments, the substrate comprises a layer of silicon or a layer of p-type silicon. In other embodiments, the substrate comprises a silicon-on-insulator wafer comprising a single-crystal-silicon layer or a single-crystal-P-silicon layer, a substrate and an insulator layer therebetween.